

# Contractor Service Tips

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## Refrigeration Receivers

**Q: What are the types of receivers and when are they used?**

A receiver is primarily a liquid storage tank for refrigerant which is not in circulation. Small packaged systems utilizing capillary tubes may have very small charges, and if the operating load is fairly constant, careful design of the evaporator and condenser may allow the elimination of the receiver. If the condenser has volume enough to provide storage space, a separate receiver is not required, and this is common design practice in water-cooled units with shell and tube condensers. However on practically all air cooled units equipped with expansion valves, a separate receiver is required.

There are two basic designs for receivers which may be of either vertical or horizontal construction.

The most common receiver is the “flow-thru” type in which the liquid from the condenser enters at the top and the outlet draws liquid from the bottom in a separate connection.

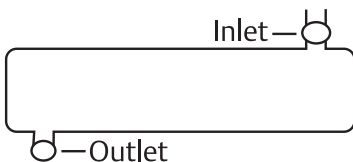


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The other design is a “surge” receiver. This receiver has a single connection for the transfer of the liquid refrigerant. In this design the connection is at the bottom of the receiver with a tee connection. One side of the tee is connected to the liquid return line from the condenser. The other side is connected to the liquid supply which feeds the evaporators.

The advantage of the surge receiver is that it tends to preserve any ambient subcooling which is contained in the liquid returning from the condenser. The disadvantage is that, during high ambient conditions when there is very little ambient subcooling available, there may be a tendency to have “flash gas” in the liquid supply. During high ambient conditions with a flow-through receiver this may not be as much of an issue since the liquid refrigerant in the receiver may actually pick up several degrees of subcooling as it travels from the inlet to the outlet.

### Flow-Through Receiver



### Surge Receiver

